

REMARKS

The claims have been amended to more clearly define the invention as disclosed in the written description. In particular, the claims have been amended for clarity.

The Examiner has rejected claims 1-10 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 7,239,424 to Berkner et al. in view of U.S. Patent 6,592,523 to Avinash et al.

The Berkner et al. patent discloses a wavelet-based image processing path, in which a digital image is converted to the wavelet domain and then subjected to low-pass and high-pass vertical and horizontal filtering resulting in four subbands LL, HL LH and HH (see col. 4, line 60 to col. 7, line 9).

The Avinash et al. patent discloses a computationally efficient noise reduction filter for enhancement of ultrasound images.

The Examiner states:

"Berkner discloses an image conversion unit for converting a first image with a first resolution into a second image with a second resolution, the second resolution being higher than the first resolution that the image conversion unit comprising: a noise adder arranged to add noise to the second image, wherein the said noise comprises spectral components that are in a part of a frequency spectrum that is above the Nyquist frequency of the first image (see figure 4b and column 16 line 62 to column 17 line 5. In this case the first image is the LL image and blue noise is added to HH and then this data is combined back together to the original first LL image to create a higher resolution with blue noises added to the LL image. The information is above the Nyquist frequency of the first image because the information is added to the HH region which is outside the frequency spectrum of the first LL image)."

Applicant submits that the Examiner is mistaken. In particular, HH is not a second image having a higher resolution than that of a first image, the first image being converted into the second image. Rather, HH is the wavelet subband formed by subjecting the original image, transformed into the wavelet domain, to horizontal and vertical high-pass filtering. Similarly, LL is the wavelet subband formed by subjecting the original image, transformed into the wavelet domain, to horizontal and vertical low-pass filtering. As such, the "first image" LL is not converted into the "second (now intermediate) image" HH. Further, there is no disclosure or suggestion that HH has a resolution greater than that of LL. Finally, HH and LL are not images but rather, are coefficient subbands formed in the wavelet domain from an input image.

While Applicant concedes that Avinash et al. discloses a filter ("differential noise reduction filtering", Fig. 3; "many noise reduction filters" (col. 6, lines 8-9), "segmentation-based" filters (col. 6, lines 19-20)), Applicant submits that Avinash et al. neither discloses nor suggests "a spatial enhancement filter for enhancing structures of said intermediate image which is based on the first image and which has the second resolution". Further, Applicant submits that Avinash et al. does not supply that which is missing from Berkner et al., i.e., "an image converter for converting a first image with a first resolution into an intermediate image with a second resolution, the second resolution being higher than the first resolution" and "a noise adder for

adding noise to the intermediate image, wherein the said noise comprises spectral components that are in a part of a frequency spectrum that is above the Nyquist frequency of the first image".

In view of the above, Applicant believes that the subject invention, as claimed, is not rendered obvious by the prior art, either individually or collectively, and as such, is patentable thereover.

Applicant believes that this application, containing claims 1-10, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

by Edward W. Goodman/
Edward W. Goodman, Reg. 28,613
Attorney
Tel.: 914-333-9611